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Error estimations of mixed finite element methods for nonlinear problems of shallow shell theory

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Abstract

© Published under licence by IOP Publishing Ltd.The variational formulations of problems of equilibrium of a shallow shell in the framework of the geometrically and physically nonlinear theory by boundary conditions of different main types, including non-classical, are considered. Necessary and sufficient conditions for their solvability are derived. Mixed finite element methods for the approximate solutions to these problems based on the use of second derivatives of the bending as auxiliary variables are proposed. Estimations of accuracy of approximate solutions are established.

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